

E. NON-FORESTED RIPARIAN (RI)

RI1. **YELLOW WILLOW–DEEP ALLUVIAL SOILS–CONCAVE BOTTOMS AND SWALES** (SALU2/CAUT).

Yellow willow/beaked sedge–Deep to very deep, alluvial to colluvial clayey Endoaquolls–U-shaped or concave draw bottoms, swales, slumps, and earthflows, 7,800–9,700 ft



NUMBER OF SAMPLES	64, soil descriptions from 25; 2 do not fit into a CT (total 66)
ELEVATION	8,801 ft (7,800-9,680 ft); 2,682 m (2,377-2,950 m)
AVERAGE ASPECT	29°M (r = 0.09)
LITHOLOGY	A wide variety, led by shale [33%], breccia-schist-tuff-granite-gneiss-basalt [59%], and others
FORMATIONS ¹	A wide variety
LANDFORMS	Predominantly draws and ravines[57%], swales [12%], and floodplains [7%]. several others
SLOPE POSITIONS	Mostly U-shaped (concave) [85%]
SLOPE SHAPES	Usually in a bottom, at least locally
SLOPE ANGLE	6.0% (0-20%)
SOIL PARENT MATERIAL	Mostly alluvial [62%], some colluvial [38%]
COARSE FRAGMENTS	2.9% (0-31%) cover on surface, 24.0% (0-76%) by volume in soil
SOIL DEPTH	111 cm (33-203 cm); 43.9 in (13-80 in)
MOLLIC THICKNESS	89 cm (11-203 cm); 35.1 in (4-80 in)
TEXTURE	Surface a wide variety, led by silty clay [20%], sandy loam [17%], clay loam [13%] and organic [13%]. Subsurface mostly clayey (clay-clay loam-silty clay-sandy clay [70%])
SOIL CLASSIFICATION	Mostly Endoaquolls [72%], some Endoaquents or Argiborolls
TOTAL LIVE COVER	268.5% (99.0-595.5%)
NUMBER OF SPECIES	28.8 (9-56)
TOTAL LIVE COVER/NO. SPECIES	12.5% (3.0-39.5%)
CLIMATE	Moderately warm, moist Montane climate when sites are in good condition; in earlier seral stages, microclimate varies to warm, moderately dry, as the water table drops and the soil surface is less shaded.
WATER	At climax, sites are ponded seasonally or throughout the growing season. At earlier seral stages, the water table is lower, roughly proportional to seral stage: lowest seral stages have lower water tables, upper seral stages have highest water tables. Water table level can be manipulated by management of water-holding and sediment-holding capacities of the vegetation at sites and up and down stream.

Key to Community Types

Note. In the key and descriptions that follow, cover of willow species includes *dead* cover as well as live cover.

1. Yellow willow (SALU2) or Pacific willow (SALUL) prominent, >10% cover, often >20%. Total willow cover usually >45% (2)
1. Yellow willow and Pacific willow absent to <10% cover..... (4)

2. Wet sedges (beaked [CAUT] and water [CAAQ]), prominent and >10% cover. Total sedge cover >15%, often >25% **A**
2. Wet sedges usually absent or uncommonly <10%. Total sedge cover 0-40% (3)

3. Kentucky bluegrass prominent, >80%. Total graminoid cover >125%.....**E**
 3. Kentucky bluegrass absent to <30%. Total graminoid cover <125%**C**
4. Total willow cover >15%. Geyer willow (SAGE2) prominent, >10% cover, usually >15% (5)
 4. Willows absent or total willow cover <15%. Geyer willow usually absent (6)
5. Beaked sedge prominent, >10% cover. Total sedge cover >10%, usually >20%..... **B**
 5. Beaked sedge absent or <10% cover. Total sedge cover usually <15%, rarely up to 30%..... **D**
6. Willows (at least one species) present and >1% cover, and total willow cover 1-15%**F**
 6. Willows usually absent or total willow cover <0.5%.....(7)
7. Shrubby cinquefoil (PEFL15) dominant, >10% cover..... **G**
 7. Shrubby cinquefoil absent or <10% cover (8)
8. Big sagebrush dominant (ARTR2), >10% cover**H**
 8. Big sagebrush usually absent, sometimes up to 1% cover (9)
9. Kentucky bluegrass prominent, >10% cover, often >25%(10)
 9. Kentucky bluegrass absent or <25% cover. Baltic rush always present, 5-40% cover.
 Dandelion always present, 0.5-30% cover**L**
10. Baltic rush (JUARA4) prominent, >10% cover. Dandelion (TAOF) often >15% cover**J**
10. Baltic rush absent or inconspicuous **K**

Description of Community Types

- A** *Yellow willow-Geyer willow-other willows-beaked sedge* is dominated by yellow willow (or Pacific willow) and Geyer willows; always more than two willow species are present and reproducing. Total willow cover is >15%, often >45%. Wet-site sedges (CAUT, CAAQ) are prominent, >10% cover. Total sedge cover is >35%. Sites are usually patchy, with loose patches of dense willows alternating with loose wet, often ponded patches of sedges and grasses. Sometimes patches correspond to beaver ponds and dams of various ages.
- B** *Geyer willow-beaked sedge* is dominated by Geyer willow, >20% cover; sometimes other willow species are present, but clearly subordinate. Yellow and Pacific willows are absent to <10% cover; total willow cover ranges 20-55%. Wet sedges are prominent, >10% cover, often >20%. Total sedge cover is >10%. Sites include well-defined patches of willows alternating with well-defined wet patches dominated by sedges (ponded only in early season); patches of dry graminoids and forbs or shrubby cinquefoil are possible.
- C** *Yellow willow-other willows-moist to dry grasses and forbs* is dominated by yellow willow or Pacific willow at >20% cover. Other willow species may be present or even codominant; total willow cover ranges from 20 to 90%. Wet-site sedges are absent or rare at <10% cover. Total sedge cover ranges from 0 to 45%. Sites include well-defined patches of willows alternating with well-defined dry spots dominated by dry-site graminoids and forbs.
- D** *Geyer willow-Kentucky bluegrass-dandelion* is dominated by Geyer willow at >10% cover. Other willow species are absent or few and sparse, usually <2% cover. Wet-site sedges are absent to <10% cover. Total sedge cover ranges from 0 to 30%. The sites are patchy, but well-defined patches of willows are small and browsed, alternating with larger patches of exotic and increaser grasses and forbs such as Kentucky bluegrass, Baltic rush, and dandelion.
- E** *Geyer-serviceberry-yellow-willows-alder-Kentucky bluegrass* is dominated by a mix of yellow, Pacific, and Geyer willows and alder (ALINT). Total willow cover is >70%. Wet-site sedges are usually absent, or rarely <10% cover. Total sedge cover ranges from 0 to 5%. Sites are patchy, with the large well-defined patches of mixed willows alternating with smaller well-defined patches of exotic, dry-site grasses and forbs such as Kentucky bluegrass.
- F** *Baltic rush-dandelion-yarrow-sparse willows* has sparse willow cover, <15%. Wet-site sedges are usually present in small to medium-sized patches. Total sedge cover ranges 0-97%. Large dry patches are dominated by exotic or increaser graminoids such as Kentucky bluegrass, Baltic rush, little barley (CRBR12), foxtail barley (CRJU2), or common timothy (PHPR3).

- G** *Shrubby cinquefoil-Baltic rush-Kentucky bluegrass-tufted hairgrass* lacks willows, or they are very minor at <0.5% cover. Shrubby cinquefoil is dominant, >10% cover. The understory is dominated by exotic or increaser graminoids such as Kentucky bluegrass, Baltic rush, quackgrass (ELRE3), redtop (AGGI2), tufted hairgrass (DECE), or common timothy (PHPR3). Sites often do not appear patchy from a distance.
- H** *Big sagebrush-Kentucky bluegrass-yarrow-dandelion* Willows are absent or very minor, <0.5%. Big sagebrush is dominant, >10% cover. The understory is dominated by exotics and increasers such as Kentucky bluegrass, dandelion, and Baltic rush, with dry-site grasses and forbs such as yarrow (ACLA5) and muttongrass (POFE).
- J** *Kentucky bluegrass-Baltic rush-dry grasses* Willows are absent or very minor, <0.5%. The community is dominated by exotics and increasers such as Kentucky bluegrass, dandelion, Baltic rush, quackgrass, timothy, smooth brome (BRIN7), and crested wheatgrass (AGCR), with dry-site grasses and forbs such as western wheatgrass (PASM), yarrow, Arizona fescue (FEAR2), or muttongrass. Kentucky bluegrass is prominent at >25%.
- K** *Kentucky bluegrass-western wheatgrass-bluegrass* Willows are absent or very minor, <0.5%. The community is dominated by exotics and increasers such as Kentucky bluegrass (POPR), with dry-site grasses and forbs such as western wheatgrass, yarrow, or muttongrass.
- L** *Baltic rush-quackgrass-dandelion-yarrow-Kentucky bluegrass-iris* Willows are absent or very minor, <0.5%. The community is dominated by exotics and increasers such as iris (IRMI), dandelion, Baltic rush, quackgrass, timothy, smooth brome, and crested wheatgrass, with dry-site grasses and forbs such as western wheatgrass, yarrow, or muttongrass. Kentucky bluegrass is absent or inconspicuous, with <25% cover.

Communities Not Assigned to a Community Type

- One community was dominated by river birch (BEFO2) with mixed willows (yellow, Bebb [SABE2]). The understory has sparse beaked sedge, Kentucky bluegrass, and Baltic rush. This community is rare in the UGB, but common elsewhere.
- One community was dominated by a mix of blue willow (SADR), Geyer willow, and shrubby cinquefoil, with sedge-Baltic rush understory. This rare community is transitional between yellow willow and blue willow types.



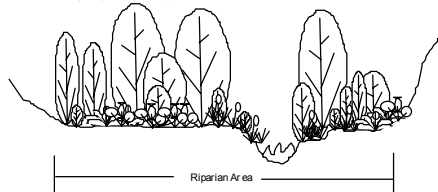
Community Type	Elevation, ft Slope, %	Coarseness, % Depth, cm Mollic Depth, cm	Surface Coarse, % Bare, % Seral Stage	Cover, %: Trees Shrubs Gramin. Forbs	No. Species Total Live Cover, % TLC/NS, %	Prod. ¹ , lb/ac/yr Shrubs Gramin. Forbs
A. Yellow willow-Geyer willow-other willows- beaked sedge	8,976 (8,300-9,680) 2.8 (1-4)	37 (0-61) 107 (67-203) 87 (11-203)	8 (2-21) 13 (2-30) PN-LS	0 (0-1) 86 (19-130) 136 (102-170) 47 (15-105)	34 (14-50) 269 (186-405) 10.2 (5.3-28.9)	532-1767 2076-2765 186-1598
B. Geyer willow-beaked sedge	8,758 (7,820-9,480) 5.0 (0-16)	28 (4-58) 134 (80-155) 94 (45-149)	0 (0-21) 9 (1-30) LM	0 (0-1) 56 (31-132) 151 (76-230) 67 (9-147)	34 (20-47) 275 (118-429) 9.2 (3.0-21.4)	875-1758 1378-2762 106-1540
C. Yellow willow-other willows-moist to dry grasses and forbs	8,749 (8,475-9,000) 3.8 (0-8)	76 106 106	1 (0-2) 7 (2-10) LM-MS	0 (0-0) 99 (63-143) 62 (7-96) 86 (54-125)	34 (19-45) 255 (203-316) 8.2 (5.5-10.8)	1521-1765 24-1938 987-1589
D. Geyer willow- Kentucky bluegrass- dandelion	8,638 (8,050-9,020) 5.9 (1-20)	6 163 163	6 (0-10) 11 (3-23) MS-EM	0 (0-0) 61 (18-151) 112 (47-190) 89 (9-319)	34 (23-46) 263 (106-595) 8.4 (3.5-22.9)	506-1756 496-2757 104-2453
E. Geyer-serviceberry- yellow willows-alder- Kentucky bluegrass	* *	* * *	* * LM-MS	0 (0-0) 141 (108-161) 160 (140-176) 156 (98-211)	20 (18-22) 464 (406-542) 23.9 (20.2-30.1)	1758-1766 2664-2765 1525-1643
F. Baltic rush- dandelion-yarrow- sparse willows	8,515 (7,800-9,000) 5.0 (3-9)	5 (0-11) 119 (33-158) 93 (33-149)	9 (0-31) 15 (2-30) ES-EM	0 (0-1) 13 (2-34) 145 (79-190) 99 (13-319)	37 (20-56) 259 (178-544) 8.3 (3.2-21.8)	58-958 1444-2761 156-2453
G. Shrubby cinquefoil- Baltic rush-Kentucky bluegrass-tufted hairgrass	8,740 (8,680-8,800) 14.5 (9-20)	10 130 130	4 (4-4) 4 (3-5) ES	0 (0-0) 28 (11-66) 162 (57-270) 125 (32-223)	23 (13-44) 315 (155-491) 18.0 (4.8-37.8)	297-1561 781-2922 417-1681
H. Big sagebrush- Kentucky bluegrass- yarrow-dandelion	9,191 (9,154-9,260) 13.0 (8-16)	* * *	4 (1-9) 9 (8-11) ES	0 (0-0) 36 (17-70) 88 (78-97) 67 (22-91)	39 (34-47) 190 (185-197) 4.9 (3.9-5.8)	467-1605 1411-1951 267-1543
J. Kentucky bluegrass- Baltic rush-dandelion- dry grasses	8,786 (8,270-9,310) 5.4 (2-9)	10 (9-10) 61 (51-71) 33 (30-36)	1 (0-4) 7 (0-15) ES	0 (0-1) 1 (0-7) 207 (132-295) 95 (11-161)	18 (9-32) 305 (153-477) 21.6 (6.4-39.5)	0-192 2590-2935 134-1596
K. Kentucky bluegrass- western wheatgrass- bluegrass	9,136 (8,880-9,450) 9.2 (3-18)	42 46 46	2 (0-5) 19 (14-30) ES	0 (0-0) 6 (0-15) 90 (64-125) 52 (12-95)	23 (14-36) 148 (99-229) 6.8 (5.2-13.1)	0-433 984-2499 147-1565
L. Baltic rush- quackgrass-dandelion- yarrow-Kentucky bluegrass-iris	8,941 (8,400-9,425) 5.7 (3-9)	* * *	6 (1-14) 17 (4-40) ES	0 (0-0) 2 (0-7) 111 (77-137) 47 (22-77)	32 (25-36) 161 (122-221) 5.2 (3.5-7.6)	0-209 1402-2634 264-1414

*. Unknown: measurements were not taken in this CT.

	TREES	
JUSC2	Juniperus scopulorum	Rocky Mountain juniper
	SHRUBS	
ARTR2	Artemisia tridentata	big sagebrush
DIIN5	Distegia involucrata	bush honeysuckle
RILA	Ribes lacustre	swamp black gooseberry
RUID	Rubus idaeus	American red raspberry
SADR	Salix drummondiana	blue willow
SAGE2	Salix geyeriana	Geyer willow
SAMO2	Salix monticola	serviceberry willow
SYRO	Symphoricarpos rotundifolius	mountain snowberry

	GRAMINOIDS	
ACLE9	Achnatherum lettermanii	Letterman needlegrass
AGEX	Agrostis exarata	spike bentgrass
AGG12	Agrostis gigantea	redtop
BRCA10	Bromopsis canadensis	fringed brome
BRIN7	Bromopsis inermis	smooth brome
CACA4	Calamagrostis canadensis	bluejoint reedgrass
CAREX	Carex	sedge
CAAQ	Carex aquatilis	water sedge
CABE2	Carex bebbii	Bebb's sedge
CAEG	Carex egglestonii	Eggleston sedge
CAFO3	Carex foenea	silvertop sedge
CAUT	Carex utriculata	beaked sedge
CRBR12	Critesion brachyantherum	little barley
DECE	Deschampsia cespitosa	tufted hairgrass
ELPA3	Eleocharis palustris	creeping spike-rush
ELRE3	Elytrigia repens	creeping quackgrass
FEAR2	Festuca arizonica	Arizona fescue
GLST	Glyceria striata	fowl mannagrass
JUARA4	Juncus arcticus ssp. ater	Baltic rush
KOMA	Koeleria macrantha	prairie junegrass
PASM	Pascopyrum smithii	western wheatgrass
PHPR3	Phleum pratense	common timothy
POFE	Poa fendleriana	muttongrass
POPA2	Poa palustris	swamp bluegrass
POPR	Poa pratensis	Kentucky bluegrass
	FORBS	
ACLA5	Achillea lanulosa	western yarrow
ALGE	Allium geeyi	Geyer onion
ARAN7	Argentina anserina	silverweed
ASTER	Aster	aster
ASFO	Aster foliaceus	leafybract aster
ASSP16	Aster spathulatus	western aster
CACO6	Cardamine cordifolia	heartleaf bittercress
CHDA2	Chamerion danielsii	fireweed
COSC2	Conioselinum scopulorum	Rocky Mountain hemlock-parsley
DENU2	Delphinium nuttallianum	pine larkspur
ERIGE2	Erigeron	fleabane
FRVI	Fragaria virginiana	Virginia strawberry
IRMI	Iris missouriensis	wild iris
MEAR4	Mentha arvensis	field mint
MECI3	Mertensia ciliata	mountain bluebells
PLMA2	Plantago major	common plantain
POPU9	Potentilla pulcherrima	beauty cinquefoil
SICA3	Sidalcea candida	white checker mallow
TAOF	Taraxacum officinale	common dandelion
THFE	Thalictrum fendleri	Fendler meadow-rue
THMO6	Thermopsis montana	golden banner
TRGY	Trifolium gymnocarpum	holly-leaf clover
TRHY	Trifolium hybridum	alsike clover
TRRE3	Trifolium repens	white Dutch clover
URGR3	Urtica gracilis	stinging nettle
VETE4	Veratrum tenuipetalum	Colorado false-hellebore
VEAM2	Veronica americana	American brooklime
VIAM	Vicia americana	American vetch
FORB	forb unknown	unknown forb
	FERNS & FERN-ALLIES	
EQAR	Equisetum arvense	field horsetail

RI2. BLUE WILLOW–DEEP ALLUVIAL SOILS–BOTTOMS (SADR/CACA4-CAUT). Blue willow/reedgrass-beaked sedge–Deep to moderately deep alluvial Cryaquolls–U-shaped or flat floodplains, terraces, and draw bottoms, 8,500-10,200 ft



NUMBER OF SAMPLES	17, soil descriptions from 6; 1 not assigned to a CT (total 18)
ELEVATION	9,291 ft (8,560-10,160 ft); 2,832 m (2,609-3,097 m)
AVERAGE ASPECT	204°M (r = 0.36)
LITHOLOGY	Mostly from igneous: granite [41%], breccia [23%], tuff [27%]; only one plot was on sedimentaries
FORMATIONS ¹	Xg [33%], Taf-Tpl [53%]
LANDFORMS	Predominantly floodplains [47%], terraces [24%], and draws [24%]
SLOPE POSITIONS	In bottoms
SLOPE SHAPES	U-shaped [65%] to flat [35%]
SLOPE ANGLE	2.8% (0-12%)
SOIL PARENT MATERIAL	Alluvium [94%]
COARSE FRAGMENTS	4.1% (0-15%) cover on surface, 34.7% (8-60%) by volume in soil
SOIL DEPTH	70 cm (50-92 cm); 27.7 in (20-36 in)
MOLLIC THICKNESS	48 cm (16-71 cm); 19.0 in (6-28 in)
TEXTURE	Silty loam [67%], a few others on the surface; subsurface is a wide variety of silty, clayey, and loamy textures
SOIL CLASSIFICATION	Mostly Cryaquolls [92%], one Cryaquent, Deep [83%] to moderately deep [17%]
TOTAL LIVE COVER	238.9% (127.8-422.9%)
NUMBER OF SPECIES	27.2 (11-41)
TOTAL LIVE COVER/NO. SPECIES	10.1% (4.3-26.0%)
CLIMATE	Cool to cold, wet to moderately wet lower Subalpine climate when the site is in good condition; in earlier seral stages, the microclimate becomes moderately warm, moderately dry, as the water table drops and the soil surface is less shaded.
WATER	At climax, sites are ponded seasonally or throughout the growing season. At earlier seral stages, the water table is lower. The level of the water table changes with management, through manipulating the water-holding and sediment-holding capacities of the vegetation on site and along the water course.

Key to Community Types

1. Blue (Drummond) willow conspicuous, >10% cover, dominant or codominant with serviceberry (mountain) willow, usually >10% cover (2)
1. Blue (Drummond) willow conspicuous, >10% cover, dominant alone, no other tall willow species >2% cover, Serviceberry (mountain) willow absent to <1% cover..... (3)
2. Bluejoint reedgrass prominent, >15% cover..... **A**
2. Bluejoint reedgrass usually absent or <15% cover **B**
3. Graminoids sparse; total graminoid cover <50% **C**
3. Graminoids more prominent; total graminoid cover >80%..... **D**

Description of Community Types

- A** *Blue willow-reedgrass-beaked sedge* is dominated by blue willow, often mixed with serviceberry willow. Total willow cover is >30%, often >50%. Bluejoint reedgrass is conspicuous in the understory at >20% cover. Wet-site sedges (CAUT, CAAQ) are often prominent; total sedge cover ranges from 3 to 140%, often >20%.
- B** *Blue-serviceberry-Geyer willows-Kentucky bluegrass-moist forbs* is dominated by a mix of blue willow and serviceberry willow. Total willow cover is >40%. Bluejoint reedgrass is absent to <15% cover. Wet-site sedges are sometimes prominent; total sedge cover ranges from 0 to 25%.
- C** *Blue willow-reedgrass-cow-parsnip* is dominated by blue willow; serviceberry willow is usually absent or very minor. Total willow cover ranges from 10 to 110%. Wet-site sedges are absent to <5% cover. Total sedge cover ranges from 0 to 20%.
- D** *Blue willow-dandelion-sparse* is dominated by blue willow; serviceberry willow is absent or very minor. Total willow cover ranges from 10 to 70%. Wet-site sedges are often prominent; total sedge cover ranges from 25 to 110%.

Communities Not Assigned to a Community Type

- One community was dominated by shrubby cinquefoil (PEFL15), with a little bluejoint reedgrass in the understory and prominent quackgrass (ELRE3) and Kentucky bluegrass (POPR).

Community Type	Elevation, ft Slope, %	Coarseness, % Depth, cm Mollic Depth, cm	Surface Coarse, % Bare, % Seral Stage	Cover, %: Trees Shrubs Graminoids Forbs	No. Species Total Live Cover, % TLC/NS, %	Prod. ¹ , lb/ac/yr Shrubs Gramin. Forbs
A. Blue willow-reedgrass-beaked sedge	9,237 (8,560-10,130) 3.9 (1-12)	35 (25-54) 71 (50-92) 38 (16-71)	2 (1-4) 4 (1-10) LS	0 (0-0) 95 (27-155) 113 (71-168) 42 (14-70)	30 (19-41) 262 (176-332) 9.7 (4.3-17.5)	757-1765 1213-2766 91-1316
B. Blue-serviceberry-Geyer willows-Kentucky bluegrass-moist forbs	9,175 (9,100-9,250) 0.0 (0-0)	* * *	7 (1-7) 36 (36-36) MS	0 (0-1) 72 (49-92) 76 (40-120) 80 (55-94)	21 (11-30) 231 (173-286) 14.3 (5.8-26.0)	1303-1741 316-2426 1012-1560
C. Blue willow-reedgrass-cow-parsnip	9,284 (9,000-9,600) 3.2 (1-5)	* * *	8 (3-15) 12 (0-40) LM	20 (0-57) 95 (73-109) 23 (6-35) 44 (11-98)	28 (11-40) 191 (128-258) 7.8 (5.5-13.5)	1630-1767 23-208 74-1581
D. Blue willow-dandelion-sparse	9,490 (8,710-10,160) 1.8 (0-4)	34 (8-60) 70 (70-70) 64 (58-70)	* 7 (2-11) EM	0 (0-0) 50 (14-90) 142 (116-185) 86 (8-193)	27 (27-27) 280 (148-423) 10.4 (5.5-15.7)	396-1734 2365-2748 51-1577

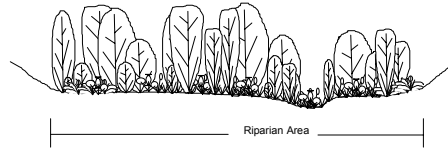
*. Unknown: measurements were not taken in this CT.

	TREES	
POTR5	Populus tremuloides	quaking aspen
	SHRUBS	
ALINT	Alnus incana ssp. tenuifolia	thinleaf alder
ARCA13	Artemisia cana	silver sagebrush
B EGL	Betula glandulosa	bog birch
DIIN5	Distegia involucrata	bush honeysuckle
PEFL15	Pentaphylloides floribunda	shrubby cinquefoil
RIIN2	Ribes inerme	whitestem currant
SABE2	Salix bebbiana	Bebb willow
SADR	Salix drummondiana	blue willow
SAGE2	Salix geyeriana	Geyer willow
SALU2	Salix lutea	yellow willow
SAMO2	Salix monticola	serviceberry willow
SAPL2	Salix planifolia	planeleaf willow
SASC	Salix scouleriana	Scouler willow
SAWO	Salix wolffii	Wolf's willow
	GRAMINOIDS	
AGROS2	Agrostis	bentgrass
AGSC5	Agrostis scabra	rough bentgrass
ALAL2	Alopecurus alpinus	alpine foxtail
CACA4	Calamagrostis canadensis	bluejoint reedgrass
CAST36	Calamagrostis stricta	Northern reedgrass
CAREX	Carex	sedge
CAAQ	Carex aquatilis	water sedge
CAAT3	Carex athrostachya	slenderbeak sedge
CADI6	Carex disperma	soft leaved sedge
CAEG	Carex egglesonii	Eggleson sedge
CAFE2	Carex festivella	ovalhead sedge
CAFO3	Carex foenea	silvertop sedge
CAGE2	Carex geyeri	elk sedge
CAPR5	Carex praegracilis	silver sedge
CAUT	Carex utriculata	beaked sedge
CRBR12	Critesion brachyantherum	little barley
DECE	Deschampsia cespitosa	tufted hairgrass
ELRE3	Elytrigia repens	creeping quackgrass
FEID	Festuca idahoensis	Idaho fescue
FETH	Festuca thurberi	Thurber fescue
JUARA4	Juncus arcticus ssp. ater	Baltic rush
MUAN	Muhlenbergia andina	foxtail muhly
MUF12	Muhlenbergia filiformis	pullup muhly
PHPR3	Phleum pratense	common timothy
POPA2	Poa palustris	swamp bluegrass
POPR	Poa pratensis	Kentucky bluegrass
TRSP2	Trisetum spicatum	spike trisetum

	FORBS	
ACLA5	Achillea lanulosa	western yarrow
ANAM	Angelica ampla	giant angelica
ARAN7	Argentina anserina	silverweed
ASAL7	Astragalus alpinus	alpine milkvetch
CEST3	Cerastium strictum	mouse-ear
CIRSI	Cirsium	thistle
CIEA	Cirsium eatonii	Eaton's thistle
EPHA	Epilobium halleanum	glandular willow-herb
ERPE3	Erigeron peregrinus	peregrine fleabane
ERSP4	Erigeron speciosus	Oregon fleabane
FRVI	Fragaria virginiana	Virginia strawberry
GASE6	Galium septentrionale	northern bedstraw
GERI	Geranium richardsonii	Richardson geranium
HESP6	Heracleum sphondylium	cow-parsnip
LUAR3	Lupinus argenteus	silvery lupine
MOLA6	Moehringia lateriflora	grove sandwort
OXFE	Oxypolis fendleri	Fendler cowbane
PODI2	Potentilla diversifolia	varleaf cinquefoil
POHI6	Potentilla hippiana	horse cinquefoil
POPU9	Potentilla pulcherrima	beauty cinquefoil
RAMA	Ranunculus macauleyi	Macauley buttercup
RUAM9	Rudbeckia ampla	golden glow
SETR	Senecio triangularis	arrowleaf groundsel
SOSI3	Solidago simplex	Mt. Albert goldenrod
TAOF	Taraxacum officinale	common dandelion
THFE	Thalictrum fendleri	Fendler meadow-rue
THMO6	Thermopsis montana	golden banner
TRHY	Trifolium hybridum	alsike clover
TRRE3	Trifolium repens	white Dutch clover
URGR3	Urtica gracilis	stinging nettle
VINU2	Viola nuttallii	Nuttall violet
VISC	Viola scopulorum	violet
	FERNS & FERN-ALLIES	
EQAR	Equisetum arvense	field horsetail

RI3. SERVICEBERRY WILLOW--DEEP ALLUVIAL SOILS--CONCAVE BOTTOMS AND SWALES

(SAMO2/CAUT). Serviceberry willow/beaked sedge--Deep to very deep alluvial to colluvial silty to clayey Cryaquolls, sometimes Histic--U-shaped or flat draws, slopes, floodplains, swales, benches, ravines, and slumps, 8,100--11,000 ft



NUMBER OF SAMPLES	34, soil descriptions from 11; 1 not assigned to a CT (total 35)
ELEVATION	9,468 ft (8,160-10,970 ft); 2,886 m (2,487-3,343 m)
AVERAGE ASPECT	188°M (r = 0.41)
LITHOLOGY	Shale-sandstone-siltstone [49%], basalt-tuff-gneiss-granite [46%]
FORMATIONS¹	Km-KJdm-Kdb [41%], Tbb-Taf [32%], Xfh-Xg [21%]
LANDFORMS	Draws, floodplains, swales, ravines [66%], some benches or soil creep slopes also
SLOPE POSITIONS	Mostly in bottoms
SLOPE SHAPES	U-shaped [66%] to flat [17%]
SLOPE ANGLE	6.2% (0-25%)
SOIL PARENT MATERIAL	Mostly alluvial [57%], some colluvial [39%]
COARSE FRAGMENTS	2.1% (0-10%) cover on surface, 19.2% (0-47%) by volume in soil
SOIL DEPTH	105 cm (73-168 cm); 41.2 in (29-66 in)
MOLLIC THICKNESS	75 cm (41-168 cm); 29.7 in (16-66 in)
TEXTURE	Surface Organic [33%] or silty (silty clay loam-silty clay [42%]); Subsurface a wide variety of textures
SOIL CLASSIFICATION	Mostly Cryaquolls [69%], some Borohemists [23%]
TOTAL LIVE COVER	268.5% (125.6-425.0%)
NUMBER OF SPECIES	28.6 (10-59)
TOTAL LIVE COVER/NO. SPECIES	12.3% (3.3-36.0%)
CLIMATE	Climate. Cool to cold, wet to moderately wet lower Subalpine climate when the site is in good condition; in earlier seral stages, microclimate may be moderately warm, moderately dry, as the water table drops and the soil surface is less shaded.
WATER	At climax, sites are ponded seasonally or throughout the growing season. At earlier seral stages, the water table is lower. The level of the water table can be manipulated by management of the water-holding and sediment-holding capacities of the vegetation and the water course.

Key to Community Types

1. Serviceberry (mountain) willow dominant or codominant, >20% cover (2)
1. Serviceberry willow usually absent, uncommonly <20% cover (3)

2. Beaked sedge prominent, >15% cover, often >20%. Shrubby cinquefoil minor, <6% cover.... **A**
2. Beaked sedge usually absent, sometimes <10%. Shrubby cinquefoil 5-25% cover..... **B**

3. Dominated by Bebb willow (SABE2) or Geyer willow (SAGE2); total willow cover >10%, usually >40%. Silver sagebrush (ARCA13) usually absent, rarely <1% cover. Shrubby cinquefoil always <15% cover, usually <10%..... **C**
3. Dominated by shrubby cinquefoil, silver sagebrush, or herbaceous plants. Total willow cover ranges 0-20%, usually <15% (4)

4. Dominated by silver sagebrush (ARCA13), shrubby cinquefoil (PEFL15), or big sagebrush (ARTR2, ARTRV); one of these always >10%, and the total of these >15% cover..... (5)
4. Dominated by exotic, native, and increaser graminoids and forbs such as Kentucky bluegrass (POPR), silvertop sedge (CAFO3), quackgrass (ELRE3), muttongrass (POFE), and Baltic rush (JUARA4). Total shrub cover 0-5% **F**
5. Geyer willow always present and >0.5% cover. Total willow cover ranges 1-20%, usually >3%. Dominated by shrubby cinquefoil or silver sagebrush..... **D**
5. Geyer willow usually absent. Total willow cover usually zero, sometimes an occasional plant, <0.1% cover. Dominated by shrubby cinquefoil, silver sagebrush, or big sagebrush..... **E**

Description of Community Types

- A** *Serviceberry willow-beaked sedge* is dominated by serviceberry willow at >35% cover. At least one other willow species is usually present; total willow cover ranges from 65 to 130%. Shrubby cinquefoil is absent or minor, <10%. Wet-site sedges (CAUT, CAAQ) and bluejoint reedgrass (CACA4) dominate the understory; at least one of these has >40% cover, and their total cover is >60%.
- B** *Serviceberry willow-shrubby cinquefoil-yarrow-dandelion* has serviceberry willow dominant or codominant, >20% cover. Usually just one other willow species is present; total willow cover ranges 20-95%. Shrubby cinquefoil is usually codominant, 5-25% cover. Dryland or exotic grasses dominate the understory, such as Kentucky bluegrass (POPR) or alpine foxtail (ALAL2). Wet sedges and bluejoint reedgrass are absent to <25% cover each, and their total is always <25%.
- C** *Bebb-Geyer willows-shrubby cinquefoil-Baltic rush-dandelion-yarrow* is dominated by Bebb willow or Geyer willow, one of which has >10% cover. Total willow cover ranges from 12 to 90%. Shrubby cinquefoil is always present at 2-15% cover, but is subordinate to willows. Exotic or dryland graminoids, such as Baltic rush, Kentucky bluegrass, tufted hairgrass (DECE), little barley (CRBR12), or Thurber fescue (FETH) dominate the understory. Wet sedges are sometimes prominent, with as much as 30% cover.
- D** *Shrubby cinquefoil-sparse Geyer willow-Kentucky bluegrass* is dominated by shrubby cinquefoil and/or silver sagebrush, one of which always has >15% cover. Geyer willow is always present but usually at <10% cover. The understory is dominated by Kentucky bluegrass (>50% cover), Baltic rush, tufted hairgrass and other moist-to-dry-site graminoids. Wet-site sedges are usually absent, but sometimes at <5% cover.
- E** *Kentucky bluegrass-sagebrush-cinquefoil* is dominated by shrubby cinquefoil, silver sagebrush, or big sagebrush, one of which always has at least 10% cover, and their total cover is >30%. Willows are usually absent. The understory is dominated by Kentucky bluegrass (>30% cover), quackgrass, Baltic rush, and other moist-to-dry-site graminoids. Wet-site sedges are usually absent.
- F** *Dandelion-Kentucky bluegrass-Baltic rush-moist sedges* includes few shrubs of any kind; total shrub cover is <5%, and willows are usually absent. The understory is dominated by exotic and dryland graminoids such as Kentucky bluegrass, Baltic rush, silvertop sedge, Bebb's sedge, quackgrass, and muttongrass.

Communities Not Assigned to a Community Type

- One community was dominated by Booth willow (SABO2), with an understory of beaked sedge, other sedges, and swamp bluegrass (POPA2). This community is very similar in vegetation, soils, and landform to CT A, but Booth willow replaces serviceberry willow. It represents the "Booth willow/beaked sedge" type, which is rare in the Gunnison Basin.

Community Type	Elevation, ft Slope, %	Coarseness, % Depth, cm Mollic Depth, cm	Surface Coarse, % Bare, % Seral Stage	Cover, %: Trees Shrubs Graminoids Forbs	No. Species Total Live Cover, % TLC/NS, %	Prod. ¹ , lb/ac/yr Shrubs Gramin. Forbs
A. Serviceberry willow-beaked sedge	9,522 (8,800-10,060) 6.6 (1-25)	12 (0-19) 101 (73-168) 97 (73-168)	* 4 (2-9) PN-LS	0 (0-0) 114 (69-147) 131 (99-192) 51 (13-71)	31 (21-47) 298 (219-355) 10.4 (6.9-16.9)	1596-1763 2006-2733 88-1321
B. Serviceberry willow-shrubby cinquefoil-yarrow-dandelion	9,553 (9,460-9,600) 8.2 (6-9)	36 (24-47) 87 (71-95) 51 (41-71)	4 (1-6) 11 (8-14) LM-MS	1 (0-2) 70 (36-141) 99 (77-122) 138 (100-185)	40 (19-48) 308 (266-343) 9.1 (5.8-17.4)	1020-1755 1397-2461 1524-1602
C. Bebb-Geyer willows-shrubby cinquefoil-Baltic rush-dandelion-yarrow	9,065 (8,160-9,850) 1.3 (0-4)	0 144 56	5 (0-7) 10 (0-25) MS	2 (0-10) 50 (20-102) 125 (107-150) 50 (39-67)	43 (33-59) 227 (181-286) 5.8 (3.3-8.7)	560-1761 2187-2726 614-1263
D. Shrubby cinquefoil-sparse Geyer willow-Kentucky bluegrass	9,260 (9,240-9,280) 5.7 (2-12)	* * *	0 (0-0) 2 (1-4) EM	2 (0-15) 45 (26-60) 164 (107-226) 109 (58-191)	26 (15-53) 320 (208-416) 16.5 (3.9-24.5)	736-1482 2176-2765 1087-1600
E. Kentucky bluegrass-sagebrush-cinquefoil	9,068 (8,920-9,180) 9.6 (5-20)	* * *	2 (0-2) 14 (1-15) ES	0 (0-0) 49 (35-80) 129 (68-210) 75 (37-175)	20 (10-40) 252 (155-425) 17.5 (4.1-36.0)	986-1684 1108-2746 553-1566
F. Dandelion-Kentucky bluegrass-Baltic rush-moist sedges	10,080 (9,700-10,970) 5.3 (4-7)	31 (29-33) 103 65	3 (0-10) 46 (7-75) ES	0 (0-0) 2 (0-4) 94 (50-132) 91 (32-135)	24 (16-34) 186 (126-255) 7.9 (4.5-10.2)	0-113 579-2589 409-1591

*. Unknown: measurements were not taken in this CT.

	TREES	
POTR5	Populus tremuloides	quaking aspen
	SHRUBS	
ALINT	Alnus incana ssp. tenuifolia	thinleaf alder
ARTR2	Artemisia tridentata	big sagebrush
ARTRV	Artemisia tridentata ssp. vaseyana	mountain big sagebrush
CHVI8	Chrysothamnus viscidiflorus	Douglas rabbitbrush
DIIN5	Distegia involucrata	bush honeysuckle
PUTR2	Purshia tridentata	antelope bitterbrush
ROWO	Rosa woodsii	Woods rose
SADR	Salix drummondiana	blue willow
SAGE2	Salix geyeriana	Geyer willow
SAWO	Salix wolfii	Wolf's willow



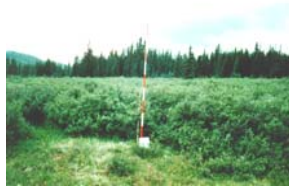
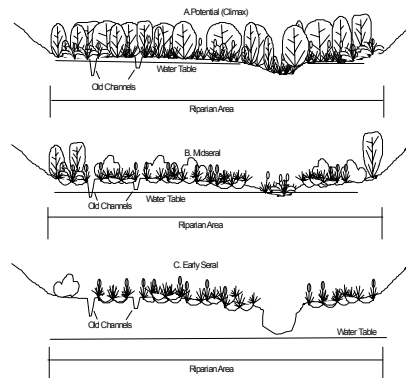
	GRAMINOIDS	
ACLE9	<i>Achnatherum lettermanii</i>	Letterman needlegrass
ACNE9	<i>Achnatherum nelsonii</i>	Nelson's needlegrass
ACPI2	<i>Achnatherum pinetorum</i>	pine needlegrass
AGGI2	<i>Agrostis gigantea</i>	redtop
ALAL2	<i>Alopecurus alpinus</i>	alpine foxtail
CACA4	<i>Calamagrostis canadensis</i>	bluejoint reedgrass
CAREX	<i>Carex</i>	sedge
CAAQ	<i>Carex aquatilis</i>	water sedge
CABE2	<i>Carex bebbii</i>	Bebb's sedge
CADI6	<i>Carex disperma</i>	soft leaved sedge
CAFO3	<i>Carex foenea</i>	silvertop sedge
CAGE2	<i>Carex geyeri</i>	elk sedge
CAMI7	<i>Carex microptera</i>	smallwing sedge
CAUT	<i>Carex utriculata</i>	beaked sedge
CRBR12	<i>Critesion brachyantherum</i>	little barley
DECE	<i>Deschampsia cespitosa</i>	tufted hairgrass
ELPA3	<i>Eleocharis palustris</i>	creeping spike-rush
ELEL5	<i>Elymus elymoides</i>	bottlebrush squirreltail
ELRE3	<i>Elytrigia repens</i>	creeping quackgrass
FEAR2	<i>Festuca arizonica</i>	Arizona fescue
FEID	<i>Festuca idahoensis</i>	Idaho fescue
FETH	<i>Festuca thurberi</i>	Thurber fescue
GLST	<i>Glyceria striata</i>	fowl mannagrass
HECO26	<i>Hesperostipa comata</i>	needle-and-thread
JUARA4	<i>Juncus arcticus</i> ssp. <i>ater</i>	Baltic rush
JUCO2	<i>Juncus confusus</i>	Colorado rush
JUSA	<i>Juncus saximontanus</i>	Rocky Mountain rush
PASM	<i>Pascopyrum smithii</i>	western wheatgrass
PHPR3	<i>Phleum pratense</i>	common timothy
POA	<i>Poa</i>	bluegrass
POFE	<i>Poa fendleriana</i>	muttongrass
POPA2	<i>Poa palustris</i>	swamp bluegrass
POPR	<i>Poa pratensis</i>	Kentucky bluegrass

	FORBS	
ACLA5	<i>Achillea lanulosa</i>	western yarrow
ARAN7	<i>Argentina anserina</i>	silverweed
ASSP16	<i>Aster spathulatus</i>	western aster
CHDA2	<i>Chamerion danielsii</i>	fireweed
COSC2	<i>Conioselinum scopulorum</i>	Rocky Mountain hemlock-parsley
DENU2	<i>Delphinium nuttallianum</i>	pine larkspur
DRRE2	<i>Draba reptans</i>	whitlow-wort
EPILO	<i>Epilobium</i>	willow herb
ERCO24	<i>Eremogone congesta</i>	desert sandwort
ERIGE2	<i>Erigeron</i>	fleabane
ERFO3	<i>Erigeron formosissimus</i>	beautiful fleabane
ERSP4	<i>Erigeron speciosus</i>	Oregon fleabane
ERUM	<i>Eriogonum umbellatum</i>	sulfur buckwheat
FRVI	<i>Fragaria virginiana</i>	Virginia strawberry
GASE6	<i>Galium septentrionale</i>	northern bedstraw
GEMA4	<i>Geum macrophyllum</i>	large-leaved avens
IRMI	<i>Iris missouriensis</i>	wild iris
LUAR3	<i>Lupinus argenteus</i>	silvery lupine
LUPA8	<i>Lupinus parviflorus</i>	lodgepole lupine
MECI3	<i>Mertensia ciliata</i>	mountain bluebells
ORAL	<i>Oreoxis alpina</i>	alpine-parsley
PADI11	<i>Packera dimorphophylla</i>	splitleaf groundsel
POPU9	<i>Potentilla pulcherrima</i>	beauty cinquefoil
PSLE	<i>Psychrophila leptosepala</i>	elkslip marsh-marigold
TAOF	<i>Taraxacum officinale</i>	common dandelion
THFE	<i>Thalictrum fendleri</i>	Fendler meadow-rue
TRRE3	<i>Trifolium repens</i>	white Dutch clover
VETE4	<i>Veratrum tenuipetalum</i>	Colorado false-hellebore
VEAM2	<i>Veronica americana</i>	American brooklime
VIAM	<i>Vicia americana</i>	American vetch
VINU2	<i>Viola nuttallii</i>	Nuttall violet
	FERNS & FERN-ALLIES	
EQAR	<i>Equisetum arvense</i>	field horsetail



RI4. PLANELEAF WILLOW/WATER SEDGE–COLD DEEP ALLUVIAL SOILS–BOTTOMS

(SAPL2/CAAQ). Planeleaf willow/water sedge–Deep to very deep alluvial Cryaquolls and Borohemists–U-shaped or flat floodplains, draw bottoms, benches, slumps, and swales, > 9,500 ft



NUMBER OF SAMPLES	19, soil descriptions from 8 of these (total 19)
ELEVATION	10,353 ft (9,540-12,040 ft); 3,155 m (2,908-3,670 m)
AVERAGE ASPECT	57°M ($r = 0.45$)
LITHOLOGY	A wide variety, with granite [36%], breccia [18%], and shale [18%] leading.
FORMATIONS¹	A wide variety
LANDFORMS	Predominantly floodplains and draws [62%], with some benches and slumps [19%] and others
SLOPE POSITIONS	Usually in bottoms
SLOPE SHAPES	U-shaped [53%] to flat [32%]
SLOPE ANGLE	2.4% (0-7%)
SOIL PARENT MATERIAL	Mostly alluvium [72%], some colluvium [17%]
COARSE FRAGMENTS	0.7% (0-2%) cover on surface, 31.2% (11-46%) by volume in soil
SOIL DEPTH	58 cm (31-70 cm); 22.9 in (12-28 in)
MOLLIC THICKNESS	28 cm (0-70 cm); 11.0 in (0-28 in)
TEXTURE	Organic [56%] to silty (silty clay loam-silty loam-silty clay [44%])
SOIL CLASSIFICATION	Cryaquolls [60%] or Borohemists [30%]
TOTAL LIVE COVER	208.5% (121.5-328.8%)
NUMBER OF SPECIES	26.5 (12-49)
TOTAL LIVE COVER/NO. SPECIES	8.7% (3.5-17.4%)
CLIMATE	Cold, wet to moderately wet lower Subalpine climate on sites in good condition; in earlier seral stages, microclimate can be cool, moderately dry, as the water table drops and the soil surface is less shaded (Fig. 15-1).
WATER	Climax sites are ponded seasonally or throughout the growing season. At earlier seral stages, the water table is lower (Fig. 15-1). The water table level can be changed by management, usually by manipulating the water-holding and sediment-holding capacities of the vegetation on site and along the water course.

Key to Community Types

1. Planeleaf willow dominant, >50% cover (2)
1. Planeleaf willow <40% cover (4)
2. Water sedge prominent, >15% cover. Total wet sedge cover (CAAQ, CAUT) >45% **A**
2. Water sedge always present, but <15% cover. Total wet sedge cover <45% (3)
3. Bog birch codominant with planeleaf willow, >10% cover **C**
3. Bog birch absent to minor, <5% cover **B**

4. Planeleaf willow always present but <10% cover. Water sedge sometimes >40% cover**E**
 4. Planeleaf willow >10% cover. Water sedge absent to abundant, but always <40% cover..... (**5**)
5. Bog birch codominant with planeleaf willow, >10% cover**C**
 5. Bog birch absent to minor, <5% cover.....**D**

Descriptions of Community Types

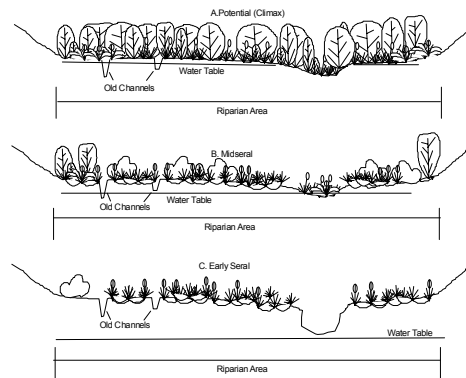
- A** *Planeleaf willow-taller willows-water sedge* is dominated by planeleaf willow at >55% cover. Taller willows are common associates, such as Geyer willow (SAGE2), blue willow (SADR), or serviceberry willow (SAMO2). Total willow cover is >75%. Water sedge dominates the understory, sometimes with beaked sedge (CAUT); total cover both wet sedges is >65%.
- B** *Planeleaf willow-marsh-marigold-water sedge* is dominated by planeleaf willow at >50% cover, usually without other willows. Water sedge is always present with <15% cover. Characteristic understory species are other sedges, bluejoint reedgrass (CACA4), or marsh-marigold (PSLE).
- C** *Planeleaf willow-moist sedges-Baltic rush-moist forbs* is dominated by planeleaf willow with 15-98% cover, codominant with bog birch (BEG1) at >10% cover. Usually no other willows are present. The understory is dominated by a variety of wet-to-moderately-wet-site sedges, such as water sedge, "cliff" sedge (CASC12), western sedge (CAOC2), soft leaved sedge (CADI6), or Bebb's sedge (CABE2). Moist-to-wet-site forbs may also be prominent, such as Rocky Mountain hemlock-parsely (COSC2), mountain bluebells (MEC13), or marsh-marigold (PSLE).
- D** *Water sedge-planeleaf willow-marsh-marigold* Planeleaf willow cover is 10-20%; sometimes small quantities of other willows are present. Water sedge is prominent at >10%. Beaked sedge is sometimes prominent, as is tufted hairgrass (DECE).
- E** *Sedges-sparse planeleaf willow-yarrow-Baltic rush-dandelion* is dominated by water sedge, tufted hairgrass, and Baltic rush (JUARA4). Planeleaf willow is always present, but at <10% cover.

Community Type	Elevation, ft Slope, %	Coarseness, % Depth, cm Mollic Depth, cm	Surface Coarse, % Bare, % Seral Stage	Cover, %: Trees Shrubs Graminoids Forbs	No. Species Total Live Cover, % TLC/NS, %	Prod. ¹ , lb/ac/yr Shrubs Gramin. Forbs
A. Planeleaf willow-taller willows-water sedge	10,058 (9,620-10,700) 1.5 (0-5)	34 (25-42) 67 (63-70) 67 (63-70)	1 (1-1) 1 (1-9) LS	0 (0-0) 113 (79-186) 100 (84-127) 38 (8-84)	23 (12-36) 253 (181-329) 12.2 (9.1-17.4)	1618-2223 695-1234 20-219
B. Planeleaf willow-marsh-marigold-water sedge	10,963 (9,870-12,040) 1.1 (0-3)	28 (11-46) 54 (31-70) 21 (0-50)	1 (0-2) 4 (2-5) LS	0 (0-0) 80 (66-95) 58 (23-86) 88 (37-113)	31 (19-49) 227 (156-269) 7.7 (5.5-9.9)	1311-1900 141-729 71-395
C. Planeleaf willow-moist sedges-Baltic rush-moist forbs	10,548 (9,540-11,040) 4.5 (2-7)	40 (34-45) 65 (62-70) 19 (0-31)	1 (1-2) 8 (3-12) LM	0 (0-1) 89 (67-104) 89 (28-147) 37 (12-77)	22 (13-34) 215 (166-295) 10.5 (8.7-13.0)	1346-2015 171-1415 28-183
D. Water sedge-planeleaf willow-marsh-marigold	10,170 (9,920-10,390) 2.3 (0-4)	19 (14-24) 56 (41-70) 14 (11-16)	9 (1-9) 5 (1-18) LM-LS	0 (0-0) 17 (13-22) 118 (72-146) 43 (23-72)	31 (19-46) 178 (160-208) 6.5 (3.5-9.5)	142-236 558-1407 52-162
E. Sedges-sparse planeleaf willow-yarrow-Baltic rush-dandelion	9,920 (9,600-10,400) 2.5 (0-4)	41 (41-41) 38 (38-38) 26 (26-26)	1 (1-1) 18 (11-25) EM	0 (0-0) 20 (4-51) 101 (95-107) 36 (21-63)	27 (18-31) 157 (121-221) 6.1 (3.9-7.1)	46-899 845-993 50-127

	SHRUBS	
BEG1	Betula glandulosa	bog birch
SADR	Salix drummondiana	blue willow
SAGE2	Salix geyeriana	Geyer willow
SALU2	Salix lutea	yellow willow
SAPL2	Salix planifolia	planeleaf willow
SAWO	Salix wolfii	Wolf's willow
VACE	Vaccinium cespitosum	dwarf bilberry

	GRAMINOIDS	
AGROS2	Agrostis	bentgrass
AGSC5	Agrostis scabra	rough bentgrass
BRSP2	Bromelica spectabilis	showy oniongrass
CACA4	Calamagrostis canadensis	bluejoint reedgrass
CAAQ	Carex aquatilis	water sedge
CAAT3	Carex athrostachya	slenderbeak sedge
CABE2	Carex bebbii	Bebb's sedge
CADI6	Carex disperma	soft leaved sedge
CAEB	Carex ebenea	ebony sedge
CAEG	Carex egglestonii	Eggleston sedge
CAMI7	Carex microptera	smallwing sedge
CAOC2	Carex occidentalis	western sedge
CASC12	Carex scopulorum	cliff sedge
CAUT	Carex utriculata	beaked sedge
DECE	Deschampsia cespitosa	tufted hairgrass
ELPA3	Eleocharis palustris	creeping spike-rush
GLST	Glyceria striata	fowl mannagrass
JUARA4	Juncus arcticus ssp. ater	Baltic rush
JUTR	Juncus tracyi	Tracy rush
POPA2	Poa palustris	swamp bluegrass
POPR	Poa pratensis	Kentucky bluegrass
PORE	Poa reflexa	nodding bluegrass
GRAM1	graminoid unknown	unknown graminoid
	FORBS	
ACLA5	Achillea lanulosa	western yarrow
ACCO4	Aconitum columbianum	Columbian monkshood
ANTEN	Antennaria	pussytoes
ANUM	Antennaria umbrinella	umber pussytoes
ASFO	Aster foliaceus	leafybract aster
CACO6	Cardamine cordifolia	heartleaf bittercress
CASU12	Castilleja sulphurea	sulfur paintbrush
CHDA2	Chamerion danielsii	fireweed
COSC2	Conioselinum scopulorum	Rocky Mountain hemlock-parsley
ERIGE2	Erigeron	fleabane
EREL9	Erigeron elatior	tall fleabane
ERPE3	Erigeron peregrinus	peregrine fleabane
FRVI	Fragaria virginiana	Virginia strawberry
GERI	Geranium richardsonii	Richardson geranium
GEMA4	Geum macrophyllum	large-leaved avens
LALE2	Lathyrus leucanthus	aspen peavine
LIBIH	Ligularia bigelovii var. hallii	Bigelow groundsel
MENTH	Mentha	mint
MECI3	Mertensia ciliata	mountain bluebells
PAPS5	Packera pseud aurea	golden groundsel
POCA2	Polemonium caeruleum	western polemonium
POPU3	Polemonium pulcherrimum	Jacob's ladder
POGR9	Potentilla gracilis	northwest cinquefoil
POHI6	Potentilla hippiana	horse cinquefoil
PSLE	Psychrophila leptosepala	elkslip marsh-marigold
	FORBS (Continued)	
PUPA5	Pulsatilla patens	American pasque flower
SENEC	Senecio	groundsel
SECR	Senecio crassulus	thickleaf groundsel
SETR	Senecio triangularis	arrowleaf groundsel
TRGY	Trifolium gymnocarpum	holly-leaf clover
VAED	Valeriana edulis	edible valerian
VETE4	Veratrum tenuipetalum	Colorado false-hellebore
VIAM	Vicia americana	American vetch
	FERNS & ALLIES	
EQAR	Equisetum arvense	field horsetail

RI5. **WOLF AND PLANELEAF WILLOWS—COLD DEEP ALLUVIAL SOILS—BOTTOMS** (SAWO-SAPL2/CAAQ). Wolf-planeleaf willows/water sedge—Deep alluvial Cryaquolls and Cryohemists—Flat to U-shaped floodplains and terraces, > 9,500 ft



NUMBER OF SAMPLES	14, soil descriptions from 10 of these (total 14)
ELEVATION	9,895 ft (9,510-10,650 ft); 3,016 m (2,899-3,246 m)
AVERAGE ASPECT	161°M (r = 0.28)
LITHOLOGY	A variety, with granite [45%], shale [18%] and limestone [18%] leading
FORMATIONS ¹	A variety
LANDFORMS	Floodplains [69%] and terraces [31%]
SLOPE POSITIONS	Bottoms
SLOPE SHAPES	Flat [85%] to U-shaped [15%]
SLOPE ANGLE	1.9% (1-4%)
SOIL PARENT MATERIAL	All alluvial
COARSE FRAGMENTS	0.4% (0-6%) cover on surface, 14.5% (0-27%) by volume in soil
SOIL DEPTH	78 cm (60-100 cm); 30.6 in (24-39 in)
MOLLIC THICKNESS	53 cm (22-90 cm); 21.0 in (9-35 in)
TEXTURE	Organic surface [54%] to silty [23%] to loamy [15%]; subsurface is a wide variety of textures
SOIL CLASSIFICATION	Cryaquolls [83%] and Cryohemists [17%]
TOTAL LIVE COVER	259.8% (176.5-332.5%)
NUMBER OF SPECIES	24.2 (13-35)
TOTAL LIVE COVER/NO. SPECIES	11.6% (7.5-25.1%)
CLIMATE	Cold, wet to moderately wet lower Subalpine climate when sites are in good condition; in early seral stages, the microclimate is cool and moderately dry, when the water table drops and the soil surface is less shaded (Fig. 15-3).
WATER	At climax, sites are ponded seasonally or throughout the growing season. In early seral stages, the water table is lower (Fig. 15-3). The level of the water table changes with management, usually by manipulating the water-holding and sediment-holding capacities of the vegetation on site and along the water course.

Key to Community Types

1. Total graminoid cover >90%. Water sedge usually dominating the understory, >20% cover, often >40%. Total sedge cover 45-120% **A**
1. Total graminoid cover <90%. Water sedge absent to codominant with other graminoids, 0-30% cover. Total sedge cover 2-80% cover **B**

Description of Community Types

A *Wolf willow-water sedge* is dominated by Wolf willow at 10-90% cover, planeleaf willow is sometimes codominant at 0-55% cover, or bog birch is codominant (BEG.L) at 0-50% cover. Water sedge usually dominates the understory with 20-98% cover, but is sometimes mixed with other sedge species; total sedge cover ranges from 45 to 120%. Tufted hairgrass is sometimes absent, up to 35% cover.

B *Wolf-planeleaf willows-tufted hairgrass* is dominated by Wolf willow (5-95% cover) or planeleaf willow (Trace-70% cover); bog birch is usually absent. Water sedge is sometimes absent, up to 30% cover; total sedge cover ranges from 2 to 80%. Tufted hairgrass is always present from tract to 50% cover.

Community Type	Elevation, ft Slope, %	Coarseness, % Depth, cm Mollic Depth, cm	Surface Coarse, % Bare, % Seral Stage	Cover, %: Trees Shrubs Graminoids Forbs	No. Species Total Live Cover, % TLC/NS, %	Prod. ¹ , lb/ac/yr Shrubs Gramin. Forbs
A. Wolf willow-water sedge	9,944 (9,510-10,650) 2.2 (1-4)	14 (0-22) 81 (70-100) 50 (22-90)	6 (1-6) 100 (11-100) LS	0 (0-1) 110 (76-167) 111 (76-158) 49 (7-105)	23 (13-30) 272 (177-333) 12.8 (8.6-25.1)	1547-2202 599-1491 17-341
B. Wolf-planeleaf willows-tufted hairgrass	9,785 (9,620-10,110) 1.3 (1-2)	17 (8-27) 65 (60-70) 65 (60-70)	* 6 (2-10) LM	0 (0-0) 79 (40-102) 70 (25-89) 80 (45-94)	27 (20-35) 229 (208-277) 8.6 (7.5-11.0)	593-1994 154-768 84-270

*. Unknown: measurements were not taken in this CT.

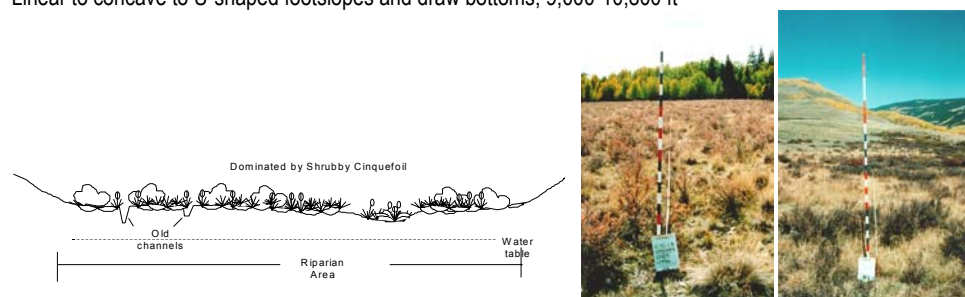
	SHRUBS
ARTRV	Artemisia tridentata ssp. vaseyana
BEG.L	Betula glandulosa
PEFL15	Pentaphylloides floribunda
SADR	Salix drummondiana
SAGL	Salix glauca
SAMO2	Salix monticola
SAPL2	Salix planifolia
SAWO	Salix wolfii
	GRAMINOIDS
ACHNA	Achnatherum
AGROS2	Agrostis
AGID	Agrostis idahoensis
AGSC5	Agrostis scabra
AGVA	Agrostis variabilis
BRPO5	Bromopsis porteri
CACA4	Calamagrostis canadensis
CAREX	Carex
CAAL6	Carex albonigra
CAAQ	Carex aquatilis
CABE2	Carex bebbii
CACA12	Carex capillaris
CADI6	Carex disperma
CAEG	Carex egglestonii
CAFO3	Carex foenea
CASC10	Carex scirpoidea
CASI2	Carex simulata
DECE	Deschampsia cespitosa
ELRE3	Elytrigia repens
FEBRC	Festuca brachyphylla ssp. coloradensis
FEID	Festuca idahoensis
JUARA4	Juncus arcticus ssp. ater
PONEI2	Poa nemoralis ssp. interior
POPR	Poa pratensis

	FORBS	
ACLA5	Achillea lanulosa	western yarrow
ACCO4	Aconitum columbianum	Columbian monkshood
ANCO	Antennaria corymbosa	plains pussytoes
ANRO2	Antennaria rosea	rose pussytoes
ARMO4	Arnica mollis	hairy arnica
ASTER	Aster	aster
ASSP16	Aster spathulatus	western aster
CACO6	Cardamine cordifolia	heartleaf bittercress
CHDA2	Chamerion danielsii	fireweed
CLRH2	Clementsia rhodantha	rose crown
COSC2	Conioselinum scopulorum	Rocky Mountain hemlock-parsley
COST	Corallorhiza striata	striped coralroot
ERIGE2	Erigeron	fleabane
ERPE3	Erigeron peregrinus	peregrine fleabane
FRVI	Fragaria virginiana	Virginia strawberry
GENTI	Gentianodes	Arctic gentian
GEMA4	Geum macrophyllum	large-leaved avens
HESP6	Heracleum sphondylium	cow-parsnip
LIPO	Ligusticum porteri	osha
MECI3	Mertensia ciliata	mountain bluebells
MIGU	Mimulus guttatus	common monkey flower
MIPE	Mitella pentandra	five-stamen miterwort
OSCH	Osmorhiza chilensis	sweet cicely
OXFE	Oxypolis fendleri	Fendler cowbane
PEGR2	Pedicularis groenlandica	elephantella
PESC9	Pedicularis scopulorum	lousewort
POFO	Polemonium foliosissimum	sky pilot
POGR9	Potentilla gracilis	northwest cinquefoil
POPU9	Potentilla pulcherrima	beauty cinquefoil
PSJA2	Pseudostellaria jamesiana	tuber starwort
PSLE	Psychrophila leptosepala	elkslip marsh-marigold
SENEC	Senecio	groundsel
SETR	Senecio triangularis	arrowleaf groundsel
SINE3	Sidalcea neomexicana	New Mexican checker mallow
SWPE	Swertia perennis	star gentian
TAOF	Taraxacum officinale	common dandelion
THAL	Thalictrum alpinum	alpine meadow-rue
THFE	Thalictrum fendleri	Fendler meadow-rue
TRGY	Trifolium gymnocarpum	holly-leaf clover
VAED	Valeriana edulis	edible valerian
VAOC2	Valeriana occidentalis	western valerian
VIOLA	Viola	violet
	FERNS & FERN-ALLIES	
EQAR	Equisetum arvense	field horsetail



RI6. SHRUBBY CINQUEFOIL–COLLUVIAL OR ALLUVIAL SOILS–PARKS AND SWALES

(PEFL15/FEID). Shrubby cinquefoil/Idaho fescue–Moderately deep colluvial to alluvial clayey Cryoborolls–
Linear to concave to U-shaped footslopes and draw bottoms, 9,000-10,800 ft



NUMBER OF SAMPLES	10, soil descriptions from 2 of these (total 10)
ELEVATION	9,768 ft (9,080-10,760 ft); 2,977 m (2,767-3,279 m)
AVERAGE ASPECT	207°M (r = 0.20)
LITHOLOGY	A wide variety
FORMATIONS	1A wide variety
LANDFORMS	Soil creep slopes [90%] and draws [10%]
SLOPE POSITIONS	Footslopes [70%] and toeslopes [30%]
SLOPE SHAPES	Usually concave at least vertically, sometimes U-shaped
SLOPE ANGLE	12.2% (3-47%)
SOIL PARENT MATERIAL	Colluvium [77%] or alluvium [23%]
COARSE FRAGMENTS	4.6% (0-18%) cover on surface, 42.4% (32-53%) by volume in soil
SOIL DEPTH	54 cm (52-56 cm); 21.3 in (20-22 in)
MOLLIC THICKNESS	25 cm (22-28 cm); 9.8 in (9-11 in)
TEXTURE	Surface is Loam-clay loam-silt loam; subsurface is clay-clay loam-sandy clay
SOIL CLASSIFICATION	All Cryoborolls, some Argic [40%], Moderately deep
TOTAL LIVE COVER	184.3% (110.8-311.0%)
NUMBER OF SPECIES	26.3 (12-41)
TOTAL LIVE COVER/NO. SPECIES	8.6% (3.0-19.8%)
CLIMATE	Cold, moderately dry Subalpine climate.
WATER	Water table usually far below the surface (Fig. 15-4).

Key to Community Types

1. Kentucky bluegrass (POPR) prominent and >20% cover. Shrubby cinquefoil sharing dominance with one or more sagebrush species (ARTRV, ARAR8, ARCA13)..... **A**
1. Kentucky bluegrass absent or very minor, usually <5% cover. Shrubby cinquefoil the leading shrub (more cover than any others)..... (2)
2. Idaho fescue (FEID) prominent, >10% cover, often >30% **B**
2. Idaho fescue absent to <10% cover **C**

Description of Community Types

- A** *Kentucky bluegrass-shrubby cinquefoil* is dominated by lush growth of Kentucky bluegrass, 20-100% cover. Shrubby cinquefoil, 10-25% cover, is codominant with one or more sagebrush species, 20-40% cover. Elk sedge (CAGE2) is sometimes prominent.
- B** *Shrubby cinquefoil-Idaho fescue-yarrow* is dominated by shrubby cinquefoil, 10-20% cover, and Idaho fescue, 10-45% cover. Kentucky bluegrass and elk sedge are absent or minor.
- C** *Shrubby cinquefoil-dry grasses and forbs* is dominated by shrubby cinquefoil with a variety of dry grasses and forbs, such as Thurber fescue (FETH), Rocky Mountain fescue (FESA), or muttongrass (POFE).

Community Type	Elevation, ft Slope, %	Coarseness, % Depth, cm Mollic Depth, cm	Surface Coarse, % Bare, % Seral Stage	Cover, %: Trees Shrubs Graminoids Forbs	No. Species Total Live Cover, % TLC/NS, %	Prod. ¹ , lb/ac/yr Shrubs Gramin. Forbs
A. Kentucky bluegrass-shrubby cinquefoil	9,407 (9,080-9,620) 15.0 (10-23)	* *	5 14 (2-14) EM	2 (0-6) 53 (41-65) 143 (105-170) 74 (26-110)	16 (12-19) 272 (237-311) 17.0 (14.0-19.8)	617-1288 972-1551 56-374
B. Shrubby cinquefoil- Idaho fescue-yarrow	10,277 (10,030- 10,760) 4.8 (3-7)	32 56 22	1 (1-1) 16 (6-25) EM	0 (0-0) 18 (15-20) 78 (47-118) 58 (40-91)	35 (27-41) 154 (111-228) 4.4 (3.0-6.2)	164-218 303-1137 74-253
C. Shrubby cinquefoil- dry grasses and forbs	9,658 (9,200-10,165) 15.7 (3-47)	53 52 28	8 (2-18) 21 (6-60) ES	0 (0-0) 38 (2-75) 55 (37-79) 49 (17-77)	27 (22-40) 142 (113-185) 5.3 (4.6-6.7)	22-1531 229-637 40-180

*. Unknown: measurements were not taken in this CT.

	TREES				FORBS	
POTR5	Populus tremuloides	quaking aspen		ACHA5	Achillea lanulosa	western yarrow
	SHRUBS			ANR02	Antennaria rosea	rose pussytoes
ARAR8	Artemisia arbuscula	low sagebrush		ASAL7	Astragalus alpinus	alpine milkvetch
ARCA13	Artemisia cana	silver sagebrush		CAR02	Campanula rotundifolia	common harebell
ARTRV	Artemisia tridentata ssp. vaseyana	mountain big sagebrush		CEFO2	Cerastium fontanum	mouse-ear
ROWO	Rosa woodsii	Woods rose		ERCO24	Eremogone congesta	desert sandwort
SYRO	Symphoricarpos rotundifolius	mountain snowberry		ERFL	Erigeron flagellaris	trailing fleabane
	GRAMINOIDS			ERSP4	Erigeron speciosus	Oregon fleabane
				ERSU11	Eriogonum subalpinum	sulfurflower
ACNE9	Achnatherum nelsonii	Nelson's needlegrass		ERTR19	Erythrocoma triflora	prairie smoke
ACPI2	Achnatherum pinetorum	pine needlegrass		GASE6	Galium septentrionale	northern bedstraw
BRPO5	Bromopsis porteri	nodding brome		IRMI	Iris missouriensis	wild iris
CAGE2	Carex geyeri	elk sedge		ORALP	Oreoxis alpina ssp. puberulenta	alpine-parsely
CAOB4	Carex obtusata	blunt sedge				
CAPR7	Carex praticola	meadow sedge		OXYTR	Oxytropis	locoweed
DAPA2	Danthonia parryi	Parry oatgrass		PATR7	Packera tridenticulata	groundsel
ELEL5	Elymus elymoides	bottlebrush squirreltail		POFO	Polemonium foliosissimum	sky pilot
FEID	Festuca idahoensis	Idaho fescue		PODI2	Potentilla diversifolia	varleaf cinquefoil
FESA	Festuca saximontana	Rocky Mountain fescue		POHI6	Potentilla hippiana	horse cinquefoil
FETH	Festuca thurberi	Thurber fescue		POPU9	Potentilla pulcherrima	beauty cinquefoil
JUARA4	Juncus arcticus ssp. ater	Baltic rush		TAOF	Taraxacum officinale	common dandelion
KOMA	Koeleria macrantha	prairie junegrass		THAL	Thalictrum alpinum	alpine meadow-rue
MUF12	Muhlenbergia filiformis	pullup muhly		THMO6	Thermopsis montana	golden banner
MUMO	Muhlenbergia montana	mountain muhly		URGR3	Urtica gracilis	stinging nettle
POFE	Poa fendleriana	muttongrass		VIBI2	Viola biflora	twoflower violet
POPR	Poa pratensis	Kentucky bluegrass				

RI7. PLANELEAF WILLOW/MARSH-MARIGOLD–COLD, WET YOUNG SOILS–HIGH BOTTOMS

(SAPL2/PSLE). Planeleaf willow/marsh-marigold–Cryaquepts–Concave footslopes and lower backslopes, > 11,500 ft



NUMBER OF SAMPLES	2, soil descriptions from neither of these (total 2)
ELEVATION	11,963 ft (11,640-12,285 ft); 3,646 m (3,548-3,744 m)
AVERAGE ASPECT	207°M (r = 0.20)
LITHOLOGY	Granite, rhyolite, breccia
FORMATIONS¹	Xg, Tiql, Tpl
LANDFORMS	Soil creep slopes [60%] and swales [40%]
SLOPE POSITIONS	Footslopes and lower backslopes
SLOPE SHAPES	Always concave at least vertically
SLOPE ANGLE	3.9% (3-4%)
SOIL PARENT MATERIAL	Colluvium
COARSE FRAGMENTS	1% cover on surface
TOTAL LIVE COVER	154.8% (139.8-169.8%)
NUMBER OF SPECIES	27.5 (26-29)
TOTAL LIVE COVER/NO. SPECIES	5.7% (4.8-6.5%)
CLIMATE	Cold, moist to wet, upper Subalpine-lower Alpine.
WATER	Water is in liquid form very little of the year, and only a fraction of the day.

Community Type

- A** *Planeleaf willow-sparse marsh-marigold-sparse bluebells* has planeleaf willow dominant, 90-100% cover. There are few other shrubs, and the herbaceous understory is moderately sparse: there are few understory species >10% cover.

Community Type	Elevation, ft Slope, %	Coarseness, % Depth, cm Mollic Depth, cm	Surface Coarse, % Bare, % Seral Stage	Cover, %: Trees Shrubs Graminoids Forbs	No. Species Total Live Cover, % TLC/NS, %	Prod.¹, lb/ac/yr Shrubs Gramin. Forbs
A. Planeleaf willow-sparse marsh-marigold-sparse bluebells	11,963 (11,640-12,285) 3.9 (3-4)	* 33 (20-46) 0 (0-0)	1 5	0 (0-0) 100 (100-100) 8 (1-16) 47 (39-54)	28 (26-29) 155 (140-170) 5.7 (4.8-6.5)	1967-1967 5-96 73-102

*. Unknown: measurements were not taken in this CT.

	SHRUBS	
SAPL2	Salix planifolia	planeleaf willow
	GRAMINOIDS	
JUME3	Juncus mertensianus	blackheaded rush
	FORBS	
ACROT	Acomastylis rossii ssp. turbinata	alpine avens
ACCO4	Aconitum columbianum	Columbian monkshood
ANNAZ3	Anemonastrum narcissiflorum ssp. zephyrum	narcissus anemone
ARSC	Artemisia scopulorum	alpine sagebrush
CACO6	Cardamine cordifolia	heartleaf bittercress
CAOC4	Castilleja occidentalis	paintbrush
CARH4	Castilleja rhexifolia	splitleaf paintbrush
ERSI3	Erigeron simplex	one-stemmed fleabane
LIBIH	Ligularia bigelovii var. hallii	Bigelow groundsel
MIOD2	Micranthes odontoloma	brook saxifrage
PSLE	Psychrophila leptosepala	elkslip marsh-marigold
SETR	Senecio triangularis	arrowleaf groundsel
SIPR	Sibbaldia procumbens	creeping sibbaldia
TRPA5	Trifolium parryi	Parry clover

RI8. **GRAYLEAF WILLOW/WATER SEDGE–DEEP COLD WET SOILS–HIGH CREEK BOTTOMS** (SAGL-SABR/CAAQ). Grayleaf-barrenground willows/water sedge–Deep to very deep Cryaquolls and Borohemists–U-shaped or flat-linear floodplains and benches, 9,500-12,100 ft



Number of Samples	7, soil descriptions from 5 of these (total 7)
ELEVATION	10,774 ft (9,640-12,080 ft); 3,284 m (2,938-3,682 m)
AVERAGE ASPECT	289°M (r = 0.26)
LITHOLOGY	Mostly igneous, with tuff [33%], granite [25%], breccia, rhyolite, and gneiss
FORMATIONS¹	Taf-Tpl-Tiql [64%], also Xg, Tmi, Xfh
LANDFORMS	Floodplains and draws [67%], benches and soil creep slopes [22%]. One frost creep slope
SLOPE POSITIONS	Bottoms
SLOPE SHAPES	Flat [56%] to U-shaped [33%]
SLOPE ANGLE	7.1% (0-22%)
SOIL PARENT MATERIAL	Alluvium [75%] or colluvium [25%]
COARSE FRAGMENTS	0.7% (0-4%) cover on surface, 36.8% (5-63%) by volume in soil
SOIL DEPTH	87 cm (33-136 cm); 34.1 in (13-54 in)
MOLLIC THICKNESS	52 cm (0-136 cm); 20.5 in (0-54 in)
TEXTURE	Organic [75%] or loam surface; subsurfaces are clay-clay loam [63%], sandy loam-sandy clay loam [37%]
SOIL CLASSIFICATION	Cryaquolls [50%], Borohemists [33%], and one Cryumbrept
TOTAL LIVE COVER	234.1% (141.8-295.8%)
NUMBER OF SPECIES	28.1 (17-34)
TOTAL LIVE COVER/NO. SPECIES	8.9% (5.7-17.4%)
CLIMATE	Very cold, dominated by cold-air drainage, upper Subalpine and lower Alpine.
WATER	Water is not frozen for very little of the year and very little of the day.

Key to Community Types

1. Water sedge conspicuous, >30% cover **A**
 1. Water sedge usually absent, sometimes up to 5% cover..... **B**

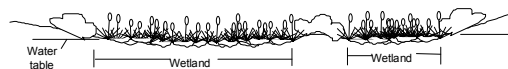
Description of Community Types

- A** *Grayleaf willow-water sedge-tufted hairgrass* is dominated by grayleaf willow at 15-85% cover, which is sometimes codominant with planeleaf willow (SAPL2); smaller amounts of other willows and shrubby cinquefoil (PEFL15) are possible. Water sedge is conspicuous with >30% cover, often >50%. Tufted hairgrass (DECE) is always present at 5-20% cover. Total graminoid cover is >75%.
- B** *Grayleaf-barrenground willows-tufted hairgrass* is usually dominated by grayleaf willow alone at >60% cover, but sometimes barrenground willow shares dominance. Water sedge is absent or minor; tufted hairgrass is sometimes absent or up to 20% cover. Total graminoid cover is <75%.

Community Type	Elevation, ft Slope, %	Coarseness, % Depth, cm Mollic Depth, cm	Surface Coarse, % Bare, % Seral Stage	Cover, %: Trees Shrubs Graminoids Forbs	No. Species Total Live Cover, % TLC/NS, %	Prod. ¹ , lb/ac/yr Shrubs Gramin. Forbs
A. Grayleaf willow-water sedge-tufted hairgrass	10,474 (9,720- 11,000) 4.2 (3-5)	32 (5-63) 93 (70-136) 74 (38-136)	4 (1-4) 1 (1-2) LS	0 (0-0) 104 (69-146) 90 (78-101) 42 (38-51)	30 (28-33) 236 (201-264) 7.9 (6.5-9.1)	1377-2198 626-918 72-95
B. Grayleaf-barrenground willows-moist forbs	11,173 (9,640- 12,080) 10.8 (0-22)	54 (54-54) 74 (33-114) 9 (0-18)	1 (1-1) 3 (1-4) LM-MS	0 (0-0) 102 (98-108) 34 (2-68) 95 (42-127)	25 (17-34) 231 (142-296) 10.2 (5.7-17.4)	1941-2048 11-509 78-489

SHRUBS		
PEFL15	Pentaphylloides floribunda	shrubby cinquefoil
SABE2	Salix bebbiana	Bebb willow
SABR	Salix brachycarpa	barrenground willow
SADR	Salix drummondiana	blue willow
SAGE2	Salix geyeriana	Geyer willow
SAPL2	Salix planifolia	planeleaf willow
GRAMINOIDS		
CAST36	Calamagrostis stricta	Northern reedgrass
CAREX	Carex	sedge
CAAQ	Carex aquatilis	water sedge
CAEB	Carex ebenea	ebony sedge
CALA10	Carex lachenalii	twolipped sedge
CAUT	Carex utriculata	beaked sedge
DECE	Deschampsia cespitosa	tufted hairgrass
ELRE3	Elytrogia repens	creeping quackgrass
FEID	Festuca idahoensis	Idaho fescue
FETH	Festuca thurberi	Thurber fescue
JUARA4	Juncus arcticus ssp. ater	Baltic rush
POPR	Poa pratensis	Kentucky bluegrass
FORBS		
ACLA5	Achillea lanulosa	western yarrow
ACROT	Acomastylis rossii ssp. turbinata	alpine avens
ANNAZ3	Anemonastrum narcissiflorum ssp. zephyrum	narcissus anemone
ANRO2	Antennaria rosea	rose pussytoes
CACO6	Cardamine cordifolia	heartleaf bittercress
CIRSI	Cirsium	thistle
COSC2	Conioselinum scopulorum	Rocky Mountain hemlock-parsley
FRVI	Fragaria virginiana	Virginia strawberry
GERI	Geranium richardsonii	Richardson geranium
GEMA4	Geum macrophyllum	large-leaved avens
LIPU6	Ligularia pudica	groundsel
LUAR3	Lupinus argenteus	silvery lupine
POPU3	Polemonium pulcherrimum	Jacob's ladder
PSMO	Pseudocymopterus montanus	mountain parsely
PSLE	Psychrophila leptosepala	elkslip marsh-marigold
RHIN11	Rhodiola integrifolia	king's crown
SEIN2	Senecio integerrimus	lamb's-tongue groundsel
SOMU	Solidago multiradiata	mountain goldenrod
STCR	Stellaria crassifolia	fleshy starwort
SWPE	Swertia perennis	star gentian
TAOF	Taraxacum officinale	common dandelion
THFE	Thalictrum fendleri	Fendler meadow-rue
TRDA2	Trifolium dasyphyllum	whiproot clover
VINU2	Viola nuttallii	Nuttall violet
FORB	forb unknown	unknown forb

RI9. **SEDGE WETLAND—DEEP COLD GLEYED SOILS—CONCAVE WATER BOWLS** (CAAQ-CAUT/DECE). Water sedge-beaked sedge/tufted hairgrass—Very deep to deep Borohemists, Cryaquolls, and Cryaquepts—Flat to U-shaped floodplains, draw bottoms, and toeslopes, >9,500 ft



NUMBER OF SAMPLES	18, soil descriptions from 4 of these (total 18)
ELEVATION	10,382 ft (9,530-12,040 ft); 3,164 m (2,905-3,670 m)
AVERAGE ASPECT	139°M (r = 0.23)
LITHOLOGY	A wide variety
FORMATIONS ¹	A wide variety
LANDFORMS	Floodplains and draws [70%], some soil creep slopes or swales [15%]
SLOPE POSITIONS	Bottoms [79%]
SLOPE SHAPES	Flat [43%] to U-shaped [33%]
SLOPE ANGLE	1.3% (0-5%)
SOIL PARENT MATERIAL	Alluvium [70%] or colluvium [20%]
COARSE FRAGMENTS	2.2% (0-25%) cover on surface, 12.9% (0-39%) by volume in soil
SOIL DEPTH	95 cm (15-155 cm); 37.5 in (6-61 in)
MOLLIC THICKNESS	59 cm (0-125 cm); 23.4 in (0-49 in)
TEXTURE	Organic surface [75%]; subsurface gleyed with clay or sandy clay loam
SOIL CLASSIFICATION	Borohemists [44%] or Cryaquolls-Cryaquepts [44%]
TOTAL LIVE COVER	128.8% (45.2-278.8%)
NUMBER OF SPECIES	12.6 (5-21)
TOTAL LIVE COVER/NO. SPECIES	12.0% (3.5-39.2%)
CLIMATE	Cold to very cold, cold-air drainage pockets, upper Subalpine.
WATER	Water is ponded on the surface most of the year, or frozen.

Key to Community Types

1. Water sedge >55% cover, usually >60%. Tufted hairgrass usually present, 0-45% cover. Total graminoid cover >115% **A**
1. Water sedge sometimes absent, always <60% cover, usually <45%. Tufted hairgrass usually absent or <15% cover, sometimes up to 95% cover. Total graminoid cover <115%..... (2)
2. Beaked sedge dominant, >75% cover. Water sedge usually present in small quantities. All other species <5% cover each..... **B**
2. Beaked sedge absent to <5% cover (3)
3. Teachers' sedge (CAPR4) prominent, >15% cover. Total graminoid cover 45-90%..... **D**
3. Teachers' sedge absent or very minor. Total graminoid cover either <45% or >90% (4)
4. Total graminoid cover <45% **E**
4. Total graminoid cover >90%..... **C**

Description of Community Types

- A** *Water sedge-wet sedges and forbs* is dominated by water sedge at >55% cover, sometimes codominant with beaked sedge. Tufted hairgrass is usually present, 0-45% cover. A variety of wet forbs may be present, such as marsh-marigold (PSLE), Eastwood's podistera (POEA), or elephantella (PEGR2). Total graminoid cover is 115-200%.

- B** *Beaked sedge-water sedge* is dominated by beaked sedge at >75% cover. Water sedge is always present but in small quantities, <10% cover. No other species has >10% cover. Total graminoid cover is 80-100%.
- C** *Tufted hairgrass-reedgrass-water sedge* is dominated by water sedge, bluejoint reedgrass (CACA4), or tufted hairgrass. Total graminoid cover is 90-120%.
- D** *Teachers' sedge-water sedge-sparse planeleaf willow* is dominated by teachers' sedge, sometimes codominant with tufted hairgrass. Total graminoid cover is 50-70%.
- E** *Water sedge-tufted hairgrass-annual bluegrass-moist forbs* is dominated by a variety of wet-site, moist-site, or moderately dry-site grasses and forbs. Total graminoid cover is <45%. One plot has conspicuous annual bluegrass (POAN).

Community Type	Elevation, ft Slope, %	Coarseness, % Depth, cm Mollic Depth, cm	Surface Coarse, % Bare, % Seral Stage	Cover, %: Trees Shrubs Graminoids Forbs	No. Species Total Live Cover, % TLC/NS, %	Prod. ¹ , lb/ac/yr Shrubs Gramin. Forbs
A. Water sedge-wet sedges and forbs	10,340 (9,540-10,990) 1.2 (0-4)	13 (0-39) 115 (80-155) 74 (36-125)	* 6 (1-12) PN-LS	0 (0-0) 0 (0-1) 148 (116-196) 41 (0-161)	12 (5-21) 189 (124-279) 19.3 (8.9-39.2)	0-14 1114-1614 0-699
B. Beaked sedge-water sedge	10,230 (10,230- 10,230) 0.0 (0-0)	* * *	2 (1-2) 25 (10-40) LS-LM	0 (0-0) 1 (0-1) 89 (83-95) 0 (0-0)	10 (6-13) 90 (83-97) 10.6 (7.4-13.8)	0-15 687-848 0-0
C. Tufted hairgrass- reedgrass-water sedge	9,980 (9,920-10,040) 4.4 (3-5)	* * *	1 (1-1) 14 (8-20) MS	0 (0-0) 0 (0-0) 103 (101-105) 13 (8-17)	17 (16-18) 116 (113-118) 6.8 (6.6-7.1)	0-0 920-972 19-41
D. Teachers' sedge- water sedge-sparse planeleaf willow	10,920 0	* * *	2 (1-3) 9 (2-15) MS	0 (0-0) 4 (0-8) 61 (60-61) 0 (0-0)	9 (9-9) 65 (61-68) 7.2 (6.8-7.6)	4-87 423-431 0-0
E. Water sedge-tufted hairgrass-annual bluegrass-moist forbs	10,446 (9,530-12,040) 1.0 (0-3)	* 15 0	6 (1-25) 26 (10-45) EM	0 (0-0) 0 (0-1) 25 (7-40) 52 (4-110)	14 (10-18) 91 (45-141) 6.5 (3.5-11.7)	0-11 41-247 10-372

*. Unknown: measurements were not taken in this CT.

	GRAMINOIDS	
AGSC5	Agrostis scabra	rough bentgrass
ALAE	Alopecurus aequalis	shortawn foxtail
CACA4	Calamagrostis canadensis	bluejoint reedgrass
CAREX	Carex	sedge
CAAQ	Carex aquatilis	water sedge
CAEB	Carex ebenea	ebony sedge
CAEG	Carex egglestonii	Eggleston sedge
CAHO5	Carex hoodii	Hood sedge
CAJO	Carex jonesii	Jones's sedge
CAPR4	Carex praeceptorum	teachers' sedge
CAUT	Carex utriculata	beaked sedge
DECE	Deschampsia cespitosa	tufted hairgrass
ELQU2	Eleocharis quinqueflora	few-flowered spike-rush
PHCO9	Phleum commutatum	alpine timothy
POAN	Poa annua	annual bluegrass
POCO	Poa compressa	Canada bluegrass
POPR	Poa pratensis	Kentucky bluegrass
POTR	Poa tracyi	Tracy bluegrass
POHU	Podagrostis humilis	alpine bentgrass

	FORBS	
CLRH2	Clematis rhodantha	rose crown
EPLA3	Epilobium lactiflorum	willow-herb
EREX4	Erigeron eximius	forest fleabane
ERGL2	Erigeron glabellus	smooth fleabane
MIGU	Mimulus guttatus	common monkey flower
PEGR2	Pedicularis groenlandica	elephantella
POEA	Podistera eastwoodiae	Eastwood's podistera
PSLE	Psychrophila leptosepala	elkslip marsh-marigold
RAHY1	Ranunculus hyperboreus ssp. intertextus	floating buttercup
RAIN	Ranunculus inamoenus	unlovely buttercup
ROPA2	Rorippa palustris	bog yellow cress
RUDE2	Rumex densiflorus	dense-flowered dock
VEAM2	Veronica americana	American brooklime
VENU2	Veronica nutans	American speedwell
	FERNs & FERN-ALLIES	
HIVA	Hippochaete variegata	northern scouring-rush